The Digestive System

* Name the components and accessory organs of the digestive system.  
  Components include: mouth, oesophagus, stomach, small intestine, large intestine (colon), and anus.  
  Accessory organs include: liver, gallbladder, and pancreas.
* Describe the function of the digestive system.  
  The digestive system serves to mechanically and chemically break down food for diffusion into blood.

Mechanical and Chemical Digestion

* Contrast mechanical and chemical digestion.   
  Mechanical and chemical digestion are both processes that are involved in the breaking down of food in the digestive system. Mechanical digestion occurs as a result of chewing (mouth contraction) and muscle contraction (stomach), whereas chemical digestion occurs as a result of enzymatic activity.
* List examples of digestive system enzymes.  
  Amylase – digests starch into simple sugars  
  Protease (inc. Pepsin) - digests proteins into amino acids  
  Lipase – digests lipids into fatty acids and glycerol

Absorption in the Digestive System

* Describe the role of the small intestine.  
  The small intestine uses diffusion and active transport to move nutrients and water from the digestive tract into the blood, and employs secretions from the gallbladder, pancreas, and liver to aid in the process.
* Contrast the role of the duodenum and the jejunum & ileum  
  The duodenum, jejunum, and ileum are the three sections that compose the small intestine, serving varying functions. While the duodenum is the site of digestion for carbs, lipids, and proteins, the jejunum & ileum are the sites of diffusion of nutrients (simple sugars, fatty acids, amino acids, vitamins, minerals) and water into blood.

Villi and Microvilli

* Outline the role of villi and microvilli.  
  Villi (singular villus) project from the entire surface of the small intestine, and the boundary of each villus contains microvilli to dramatically increase the surface area for absorption. Each villus is supplied with a network of capillaries and lymph vessels.
* Explain why nutrients and water diffuse readily from the small intestine in to blood and lymph vessels.   
  The diffusion of nutrients and water from the small intestine into blood and lymph vessels is hastened by the high surface area of the small intestine (thanks to villi and microvilli), and the digestive surface crossed by the nutrients and water is only two cells thick.